



A revision of the tribe Gonocerini from Australia (Hemiptera: Heteroptera: Coreidae: Coreinae)

HARRY BRAILOVSKY

Instituto de Biología, Departamento de Zoología, Universidad Nacional Autónoma de México, Apdo Postal 70153, México D.F., 04510. E-mail: coreidae@servidor.unam.mx

Abstract

The coreine tribe Gonocerini (Coreidae) of Australia is revised. Three genera and seven species are recorded. Among them are three new species (*Cletomorpha saphisa*, *Plinachtus melinus*, and *Plinachtus refulgens*). New distributional records are given for *Cletomorpha mackayensis* Distant, *Cletus minutus* Blöte, *Cletus saucius* Stål, and *Cletus similis* Blöte. Redescriptions of previously known species are provided. Diagnostic taxonomic characters of head, pronotum, and male genital capsule, and dorsal views of some species are illustrated. A key is given to the known genera and species.

Key words: Insecta, Hemiptera, Heteroptera, Coreidae, Gonocerini, revision, Australia

Introduction

This contribution summarizes current knowledge of the coreine tribe Gonocerini from the Australian region, bringing together information from the literature and from previously unstudied collections.

The Australian members of the Gonocerini are characterized by having the head comparatively long, the preocular region surpassing the antenniferous tubercles, the tylus apically rounded (not laterally compressed) and the rostrum slender, reaching or extending beyond the mesosternum. The legs are unarmed, the hind femur not incrassate, and the tibiae sulcate and not expanded. Additionally, the abdominal spiracle are circular and small; they are closer to the anterior border than to the posterior border of the sternites, and remote from the connexivum or located almost midway between the sternite's midline and the connexivum of the abdominal sternite and much nearer to the lateral border of the pleural margin; the distance between an abdominal spiracle and the lateral margin of its abdominal sternite is less than the distance between a spiracle and the anterior margin of its sternite.

In the following text all Gonocerini species known from Australia are included, three new species are described, for a total of three genera and seven species.

Materials and methods

The following abbreviations are used for the institutions cited here: The Australian Museum, Sydney, Australia (AMUS); Australian National Insect Collection, Canberra, Australia (ANIC); Natural History Museum, London, United Kingdom (BMNH); Bernice P. Bishop Museum, Honolulu, Hawaii, USA (BPBM); California Academy of Sciences, Golden Gate Park, San Francisco, USA (CAS); Department of Agriculture of Western Australia, South Perth, Western Australia, Australia (DAWA); Department of Primary Industries, Mareeba,

Australia (DPI); Naturhistoriska Riksmuseet, Stockholm, Sweden (NHRM); Queensland Museum, Brisbane, Australia (QMBA); Rijksmuseum van Natuurlijke Historie, Leiden, Netherlands (RMNH); South Australian Museum, Adelaide, Australia (SAMA); Colección Entomológica, Instituto de Biología, Universidad Nacional Autónoma de México, México (UNAM); United States National Museum, Smithsonian Institution, Washington, D. C. USA (USNM); Zoologische Staatssammlung München, Germany (ZSMC). Measurements are given in millimeters.

Results

Key to the known Australian gonocerini *

1. Costal margin of corium smooth, unserrated; space between each hind coxae 1 to 1.5 times diameter of one coxae; posteroventral edge of male genital capsule with prominent medial plate (Figs. 17–18); head pentagonal, elongate (Figs. 10, 15)..... *Plinachtus* Stål ... 2
- 1'. Costal margin of corium crenulate to serrate; space between each hind coxae less than 0.7 times diameter of one coxae; posteroventral edge of male genital capsule without median plate (Fig. 20); head subquadrate, obliquely bent (Figs. 11–14) 3
2. Humeral angle's tapering into short acute spine (Fig. 3); antennal segment I somewhat triquetral; antennal segment III narrowly elliptical and expanded (Fig. 1); rostral segments I and II pale yellow, III and IV shiny orange; costal margin of corium with a pale yellow longitudinal stripe..... *P. melinus* n. sp.
- 2'. Humeral angle's projection remarkably large and acute (Fig. 4); antennal segment I not triquetral; antennal segment III cylindrical, not apically expanded (Fig. 2); rostral segment I yellow, II black with basal joint yellow, III–IV black; costal margin of corium without pale yellow longitudinal stripe *P. refulgens* n. sp.
3. Posterior angles of connexival segments IV–V produced into short subacute projection; connexivum conspicuously raised above tergum; outer border of antenniferous tubercles always armed (Fig. 11)..... *Cletomorpha* Mayr ... 4
- 3'. Posterior angles of connexival segments obtuse, not produced; connexivum not conspicuously raised above tergum; outer border of antenniferous tubercles usually unarmed..... *Cletus* Stål 5
4. Total body length shorter than 6 mm; corium lacking transverse whitish callose band; humeral angle tapering into medium-sized acute spine (Fig. 6) *Cl. saphisa* n. sp.
- 4'. Total body length larger than 8 mm; corium with wide transverse whitish callose band; humeral angle tapering into large acute spine (Fig. 5) *Cl. mackayensis* Distant
5. Outer border of antenniferous tubercle armed with short acute spine; antennal segment IV fusiform, elongate; apical third of tibiae and tarsi shiny reddish; apical edge of corium lacking ivory to whitish discoidal spot; humeral angle tapering into large acute spine (Fig. 8)..... *C. saucius* Stål
- 5'. Outer border of antenniferous tubercle unarmed; antennal segment IV subclavate, shorter; apical third of tibiae and tarsi not shiny reddish; apical edge of corium with ivory to whitish discoidal spots; humeral angle obtuse or subacute or with medium-sized spine (Figs. 7, 9)..... 6
6. Humeral angle obtuse or tapering into short subacute spine (Fig. 9); head and pronotum with wide black to reddish brown stripe, this usually reaching base of scutellum *C. similis* Blöte
- 6'. Humeral angle tapering into medium-sized acute spine (Fig. 7); head and pronotum with indistinct black stripe *C. minutus* Blöte

* *Cletus bipunctatus* (Westwood) not available.

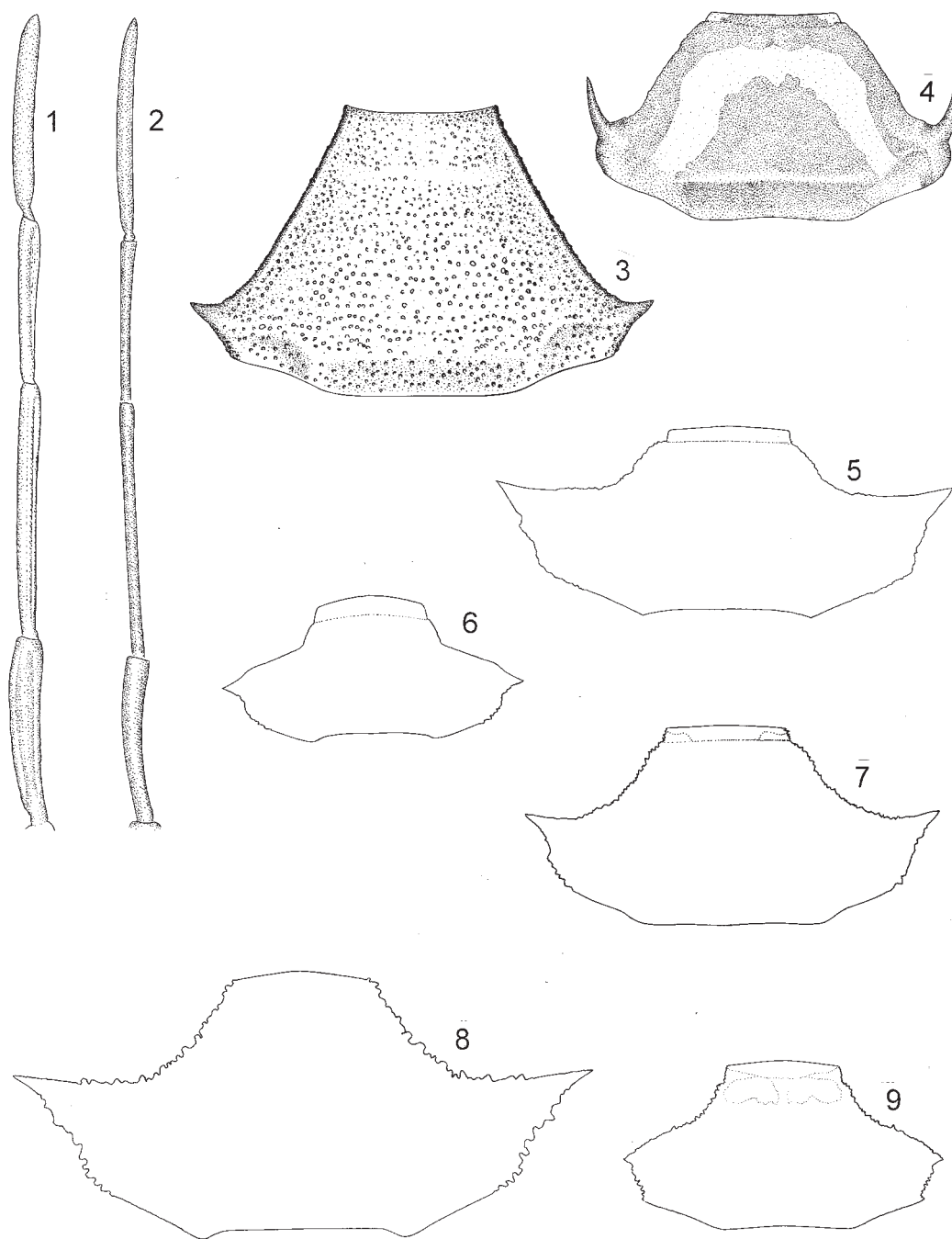


FIGURE 1–4. *Plinachtus* spp. 1–2. Antennae. 1. *Plinachtus melinus* n. sp. 2. *Plinachtus refulgens* n. sp. 3–4. Pronotum. 3. *Plinachtus melinus* n. sp. 4. *Plinachtus refulgens* n. sp.

FIGURE 5–6. Pronotum. 5–6. *Cletomorpha* spp. 5. *Cletomorpha mackayensis* Distant. 6. *Cletomorpha saphisa* n. sp.

FIGURE 7–9. *Cletus* spp. 7. *Cletus minutus* Blöte. 8. *Cletus saucius* Stål. 9. *Cletus similis* Blöte.

***Cletomorpha mackayensis* Distant**

(Figs. 5, 11, 16, 19, 25)

Cletomorpha mackayensis Distant, 1911: 583.

Redescription. Male. Head length 1.04; width across eyes 1.40; interocular space 0.80; interocellar space 0.33; preocular distance 0.56; antennal segment length I, 2.16, II, 2.20, III, 1.92, IV 1.48; pronotum length

1.92; width across humeral angles 3.84; scutellar length 1.16; width 1.28; maximum width of abdomen 3.64; total body length 8.10. Dorsal coloration.—Head pale yellow, with few reddish orange punctures; antennal segments I to III pale yellow, IV shiny brownish orange, basal joint and apex dark yellow; pronotum pale yellow, posterior margin dark yellow with reddish brown punctures, humeral spine black to dark brown; scutellum dark yellow, punctures pale orange, apex pale yellow; clavus and corium dark yellow, punctures reddish brown, anterior half of costal margin pale yellow; apical edge of corium with distinct transverse wide whitish callose band, running from base of medio-apical angle to or near costal margin; hemelytral membrane translucent, veins and basal angle pale yellow; connexival segment III pale yellow, IV pale yellow with posterior margin pale brown, V pale brown suffused with yellow and pink marks, VI and VII pale yellow, anterior and posterior borders pale brown; dorsal abdominal segments shiny pale orange yellow. Ventral coloration.—Including rostral segments (apex of IV brown), legs (tibiae and tarsi suffused with pale orange marks), anterior and posterior lobe of metathoracic peritreme, and genital capsule pale yellow, with few reddish brown punctures at propleuron, mesopleuron, metapleuron, and abdominal sterna III to VII; posterior angle of connexivum dark brown. *Structure*.—Head.—Antenniferous tubercles widely separate, outer border armed with single medium-sized acute spine; antennal segment I uniformly stout, wider, granulate, segments II and III slender, cylindrical, IV fusiform, elongate; segment II>I>III>IV, or II>III>I>IV; rostrum reaching posterior margin of metasternum (Figs. 11, 16). Thorax.—Pronotum.—Humeral angle tapering into large acute spine, directed outward (Fig. 5). Legs: femora and tibiae finely granulate. Abdomen.—Connexivum distinctly raised above terga, posterior angles of connexival segments IV to VI produced into short, obtuse projection; upper margin of connexivum crenulate. Genital capsule.—Posteroventral edge with lateral angles rounded, exposed, and mesial lobe quadrate, protruding, laterally concave, and apically straight (Fig. 19).

Female. Head length 1.06; width across eyes 1.42; interocular space 0.88; interocellar space 0.40; preocular distance 0.64; antennal segment length I, 1.64, II, 1.96, III, 1.80, IV 1.48; pronotum length 1.92; width across humeral angles 4.48; scutellar length 1.24; width 1.44; maximum width of abdomen 4.08; total body length 8.50. Coloration similar to male. Connexival segments VIII and IX pale yellow, posterior border pale brown; dorsal abdominal segments II to IX pale yellow, suffused with pale brown; genital plates yellow. *Structure*.—Abdominal sternite VII with plica and fissura; plica reduced, occupying anterior border of sternite, concave; fissura covering 2/3 or more of total length of sternite; gonocoxae I short, enlarged anteroposteriorly, in caudal view closed, in lateral view convex, entire; paratergite VIII conspicuously reduced, almost hidden by outer margin of abdominal sternite VII; paratergite IX broad, foliate, larger than gonocoxa I.

Variation. 1. Ocellar tubercle black. 2. Middle third of anterior lobe of pronotal disk with irregular black spot on each side. 3. Propleuron, mesopleuron, metapleuron pale yellow, heavily punctate with dark brown punctures. 4. Mesosternum pale yellow, pale brown laterally. 5. Abdominal sternites III and IV with short and wider black diagonal stripe. 6. Abdominal sterna III to VII with four incomplete rows of pale brown spots (usually hard to see). 7. Posterior border of connexival segment III pale brown.

Type locality. AUSTRALIA: Queensland, Mackay (BMNH, examined).

Distribution. AUSTRALIA: Queensland, Mackay (NE coastal). Indonesia, Irian Jaya, Maluku, and Sulawesi. Papua New Guinea (Blöte 1935, and Cassis and Gross 2002).

Material examined. New records. AUSTRALIA: 1 male, 1 female, Queensland, 4 mi SSE of Yeppoon, 2-II-1970, I. F. B. Common (ANIC); 1 female, Central Queensland, Boyne Island via Gladstone, 23°55'S151°20'E, 1995 (without date) (QMBA); 1 female, Northern Territory, 5 mi SSE of Auvergne HS (East Barne River Bank), 15°46'S130°02'E, 28-V-1968, M. Mendum (ANIC).

Comments. This species is easily distinguished by having the antenniferous tubercles armed, the posterior angles of connexival segments IV to VI produced into short obtuse projections, the apical edge of the corium with a whitish callose transverse stripe, paratergite VIII reduced, the pronotal disk clearly bicolorous (pale yellow with posterior margin dark yellow to pale brown), and each humeral angle tapering into a large acute spine (Fig. 5).

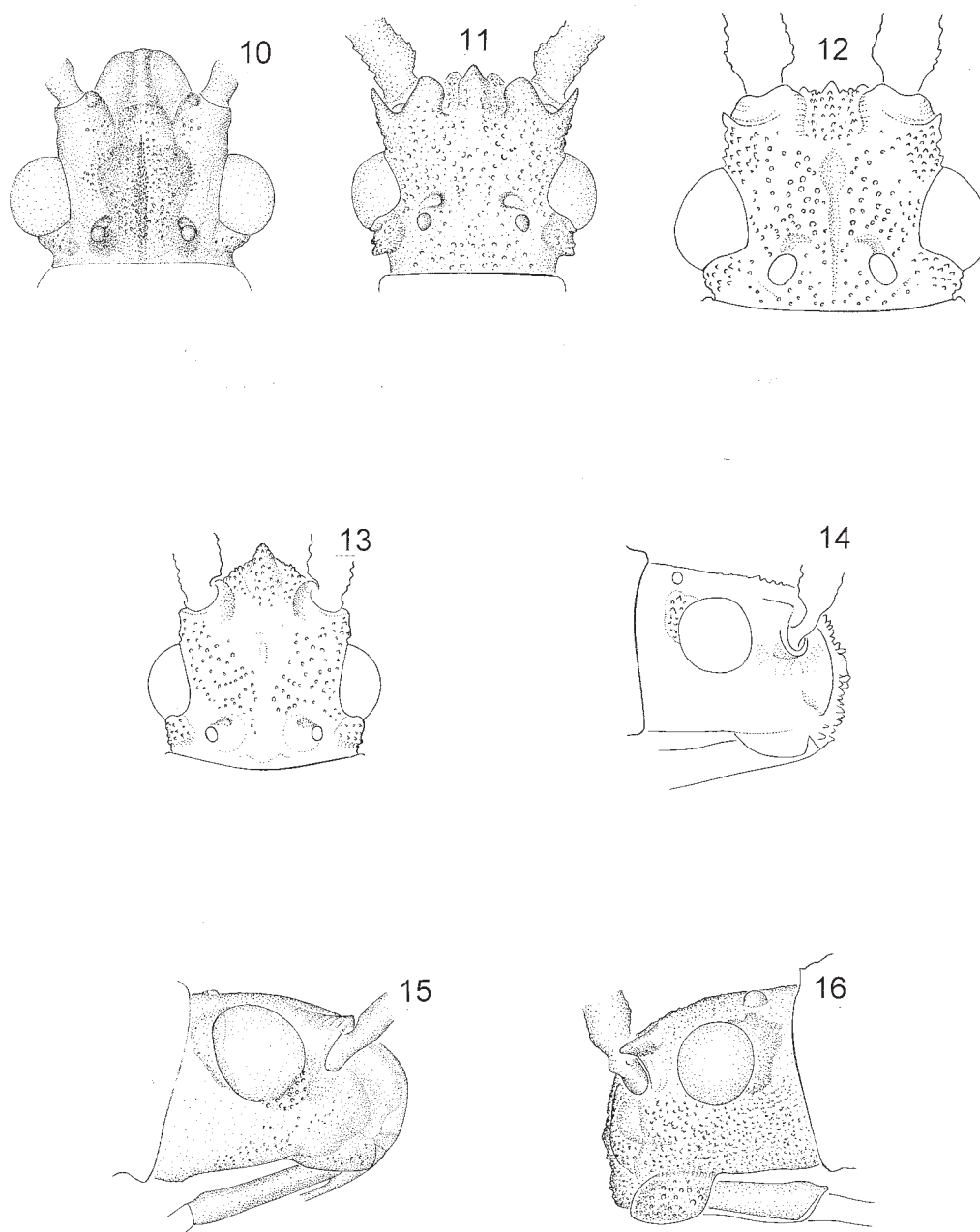


FIGURE 10–16. Head. **10–13.** Dorsal view. 10. *Plinachtus refulgens* **n. sp.** 11. *Cletomorpha mackayensis* Distant. **12–13.** *Cletus* spp. 12. *Cletus saucius* Stål. 13. *Cletus similis* Blöte. **14–16.** Lateral view. 14. *Cletus similis* Blöte. 15. *Plinachtus refulgens* **n. sp.** 16. *Cletomorpha mackayensis* Distant.

Cletomorpha saphisa* **n. sp.*
(Figs. 6, 26)

Description. Holotype female. Head length 0.80; width across eyes 1.12; interocular space 0.64; interocellar space 0.28; preocular distance 0.48; antennal segment length I, 0.84, II, 1.28, III, 1.24, IV 0.78; pronotum length 1.20; width across humeral angles 2.44; scutellar length 0.80; width 0.92; maximum width of abdomen 2.56; total body length 5.70. Overall coloration yellowish, punctures dark orange, surface tinged with pink marks; head, pronotum, scutellum with whitish medial longitudinal stripe; antennal segments I to III pale yellowish orange, IV pale brown; hemelytral membrane translucent, veins and basal angle pale yellowish brown; apex of rostral segment IV, prosternum, mesosternum, metasternum, and irregular spot on abdominal sterna V

and VI black; coxae and trochanter yellow with pink discoidal marks; femora yellow suffused with pale brown marks, tibiae yellow with three incomplete pale brown rings, tarsi pale yellowish orange. *Structure*.— Head.— Subquadrate, obliquely bent; antenniferous tubercles widely separate, outer border armed with medium-sized single acute spine; antennal segment I uniformly stout, wider, granulate, segments II and III slender, cylindrical, IV fusiform; rostrum reaching middle third of metasternum. Thorax.— Pronotum.— Humeral angle each tapering to medium-sized acute spine directed outward (Fig. 6). Legs, abdomen, genital plates as in *Cletomorpha mackayensis* Distant.

Male. Unknown.

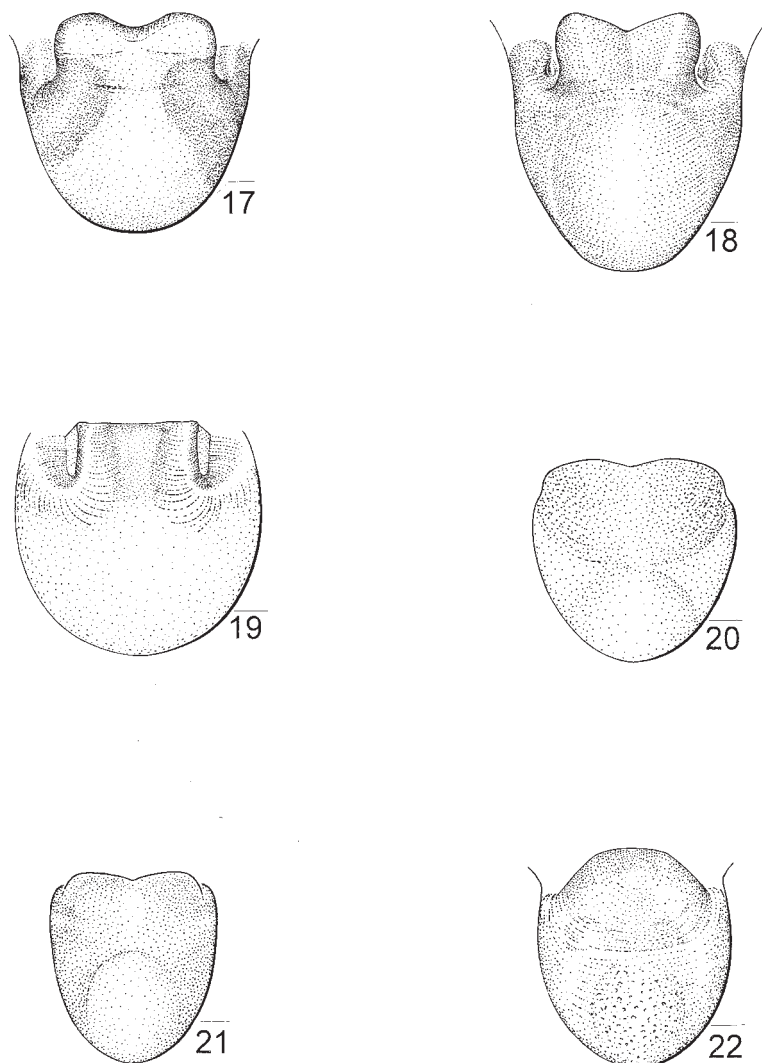


FIGURE 17–22. Male genital capsule in caudal view. **17–18.** *Plinachtus* spp. 17. *Plinachtus refulgens* n. sp. 18. *Plinachtus melinus* n. sp. Figure 19. *Cletomorpha mackayensis* Distant. **20–22.** *Cletus* spp. 20. *Cletus similis* Blöte. 21. *Cletus minutus* Blöte. 22. *Cletus saucius* Stål.

Types. Holotype female, **AUSTRALIA:** New South Wales, Tooloom Scrub via Urbenville, 8-I-1977, B. K. Cantrell (DPI). **Paratype.** **AUSTRALIA:** 1 female, Queensland, Bunya Mts., 19–21-XI-1967, J. and M. Sedlacek (BPBM).

Comments. This new species is distinguished from *C. mackayensis* Distant by a combination of characters: total body length shorter than 6.00 mm, head, pronotum, and scutellum with whitish median longitudinal stripe, each humeral angle tapering into a medium-sized acute spine (Fig. 6), connexival segment V yellow, and corium lacking a transverse whitish callose band. In *C. mackayensis* the total body length is greater than 8.00 mm, head, pronotum, and scutellum lack a whitish longitudinal stripe, each humeral angle tapers into a

remarkably large acute spine (Fig. 5), connexival segment V is pale brown with yellow and pink marks, and the corium has distinct transverse and wide whitish callose band.

Etymology. The species epithet is derived from the Greek adjective, *saphis*, meaning distinct, referring to the distinctly delimited colour pattern on head, pronotum, and scutellum.

Cletus bipunctatus (Westwood)

Coreus bipunctatus Westwood, 1842: 23.

According to the original description, this species is recognized by the body being yellow with black punctures, each humeral angle tapering into a large acute spine, antennal segment IV black, the apical edge of corium with a whitish discoidal spot, and the venter yellowish with rows of black punctures.

Its occurrence outside of the Indian subcontinent must be confirmed. Therefore for the moment I assume that the Australian records of *C. bipunctatus* (Westwood 1842) actually belong to *C. saucius* Stål (!873).

Type locality. INDIA.

Distribution. **AUSTRALIA:** New South Wales, Sydney; Queensland, Brisbane. **BURMA** (= Myanmar). **INDIA.** **INDONESIA:** Java, Kalimantan, Sumatra, Timor. **PAKISTAN.** **TAIWÁN.** **JAPAN.** (Westwood 1842, and Cassis and Gross 2002).

Material examined. No available specimens.

Cletus minutus Blöte

(Figs. 7, 21)

Cletus minutus Blöte, 1935: 206–207.

Redescription. Male. Head length 0.98; width across eyes 1.30; interocular space 0.74; interocellar space 0.30; preocular distance 0.60; antennal segment length I, 1.48, II, 1.88, III, 1.80, IV 1.10; pronotum length 1.68; width across humeral angles 3.16; scutellar length 1.08; width 1.16; maximum width of abdomen 2.92; total body length 7.50. Dorsal coloration.— General color pale yellowish orange, punctures reddish brown to pale orange; reddish brown punctures on head and pronotum forming indistinct markings; antennal segments I to III pale yellowish orange, IV pale reddish brown and basal joint and apex dark yellow; inner third of ocellar tubercle black; anterior half of pronotal disk with two black, lateral, discoidal spots; apex of scutellum pale yellow; apical angle of corium suffused with pale reddish marks; apical edge of corium with clearly whitish to ivory discoidal spot; hemelytral membrane translucent, veins and basal angle dark yellow; connexivum pale yellowish orange with some pale brown punctures; dorsal abdominal segments pale yellow, suffused with shiny orange irregular marks. Ventral coloration.— Venter, rostral segments, legs, genital capsule pale yellow, following areas black to dark brown: apex of rostral segment IV, small discoidal spot at mesopleura, one or two discoidal spots on coxae, large discoidal spot on abdominal sternite II, six rows of small to tiny discoidal spots on abdominal sterna III to VII; granules of femora and tibiae pale brown. *Structure.*— Head.— Antennal segment I uniformly robust, wider, granulate, segments II and III slender, cylindrical, IV subclavate; segment II>III>I>IV; antenniferous tubercles widely separated, unarmed; rostrum reaching anterior third of metasternum. Thorax.— Pronotum.— Humeral angles tapering into large, acute spines, directed outward, slightly upward; anterolateral borders crenate; outer third of posterolateral borders crenate, inner third smooth (Fig. 7). Legs.— Femora and tibiae not coarsely punctate. Genital capsule.— Posteroventral edge with lateral angles straight, without expansions, mesial lobe wider, large, occupying almost entire space of capsule, and apically straight or very slightly excavated in middle third (Fig. 21).

Female. Head length 1.00; width across eyes 1.34; interocular space 0.80; interocellar space 0.32; preocular distance 0.62; antennal segment length I, 1.36, II, 1.76, III, 1.64, IV 1.12; pronotum length 1.86; width across humeral angles 3.32; scutellar length 1.20; width 1.24; maximum width of abdomen 2.96; total body length 8.05. Coloration similar to male. Connexival segments VIII and IX pale yellow with pale brown punctures; dorsal abdominal segments VIII and IX, and genital plates pale yellow. *Structure*.— Genital plates: Abdominal sternite VII with plica and fissura; plica reduced, occupying anterior border of sternite, and barely concave; fursura covered 2/3 or more of total length of sternite; gonocoxae I wide, enlarged anteroposteriorly, in caudal view closed, in lateral view convex, entire; paratergite VIII triangular, small, with visible spiracle; paratergite IX broad, squarish.

Variation. 1. Propleuron and metapleuron with or without small black discoidal spot. 2. Abdominal sterna II to IV with wide and irregular black lateral stripe. 3. Abdominal sterna II to IX suffused with tiny pink discoidal marks.

Type locality. AUSTRALIA: Queensland, Peak Downs (RMNH, examined).

Distribution. AUSTRALIA: Queensland, Peak Downs (NE coastal). (Blöte 1935, and Cassis and Gross 2002).

Material examined. New records. AUSTRALIA: 3 males, 1 female, Queensland, Selwyn Mine, 160 km SE of Mt. Isa, 7–14-III-1991, T. Woodgen (AMUS); 1 male, Western Australia, Sir Graham Moore ID, 20-II-1945, B. Malkin (USNM); 1 female, Northern Territory, Katherine, 17-IV-1962, L. F. B. Common (ANIC).

Comments. Blöte (1935) described this species based on only one male (holotype), and mentioned in the original description that is very small (6 mm long), the antennal segments I to III are about equal in length, the humeral angles of pronotum are acute and directed outward, the black punctures on the head and pronotum form indistinct markings, ventrally the pro- and mesopleura each have two black discoidal spots on each side, the metapleuron has one black discoidal spot on each side, and abdominal sterna III to VII have six black rows of discoidal spots. In this study, I examined not only the male holotype (deposited in RMNH), but also 4 males and 2 females clearly belonging to this species. In these each humeral angle of the pronotum tapers into a large acute spine directed outward and slightly upward (Fig. 7), and the head and pronotum have indistinct black stripes.

Cletus saucius Stål

(Figs. 8, 12, 22, 23)

Cletus saucius Stål, 1873: 78.

Redescription. Male. Head length 1.30 ; width across eyes 1.56 ; interocular space 0.78; interocellar space 0.36; preocular distance 0.66; antennal segment length I, 1.92, II, 1.88, III, 1.60, IV 1.80; pronotum length 2.20; width across humeral angles 5.00; scutellar length 1.48; width 1.52; maximum width of abdomen 3.72; total body length 10.40. Dorsal coloration.— General color dark yellowish orange, punctures reddish brown; head with black narrow longitudinal stripe behind eyes; antennal segments I to IV pale reddish orange, with yellowish white granules; scutellum, clavus, corium, densely suffused with pink marks; middle third of pronotal disk with complete yellowish orange longitudinal stripe; anterolateral and posterolateral borders of pronotum with creamy white teeth; spine of humeral angle dark yellowish orange to shiny dark brown; apex of scutellum pale yellow; hemelytral membrane dark yellow, basal angle dark brown; connexival segments III to VI dark yellow, upper border pale yellow, punctures reddish brown, and VII pale reddish orange, upper border pale yellow, punctures reddish brown; dorsal abdominal segments III to VI shiny yellowish orange, VII shiny reddish orange. Ventral coloration.— Pale yellow, suffused or not with pink marks, following dark brown to black: apex of rostral segment IV, punctures, broad spot on abdominal sternite II, six rows of small to medium-sized discoidal spots on abdominal sterna III to VII; anterior and posterior lobe of metathoracic peri-

treme yellow; coxae yellow with two black discoidal spots; trochanter dark yellow; femora dark yellow with dark brown discoidal or irregular spots; tibiae yellowish orange, apical third shiny reddish orange; tarsi shiny reddish orange. *Structure*.— Head.— Antennal segment I uniformly stout, wider, granulate, segments II and III barely robust, cylindrical, and IV fusiform, and elongate; segments I>II>IV>III; antenniferous tubercles widely separate, outer border armed with one short acute spine; rostrum reaching posterior border of mesosternum, or anterior third of metasternum (Fig. 12). Thorax.— Pronotum.— Humeral angle tapering into large acute spine, directed outward and slightly backward (Fig. 8). Legs.— Femora and tibiae granulate. Genital capsule.— Posteroventral edge with lateral angles straight, without expansions, mesally relatively elongate, mesial lobe wide, protruding, obtusely rounded at apex, and with weakly inflexed at center (Fig. 22).

Female. Head length 1.24; width across eyes 1.58; interocular space 0.82; interocellar space 0.38; preocular distance 0.70; antennal segment length I, 2.00, II, 2.00, III, 1.60, IV 1.96; pronotum length 2.10; width across humeral angles 5.04; scutellar length 1.48; width 1.56; maximum width of abdomen 3.72; total body length 10.37. Coloration similar to male. Connexival segments VIII and IX and dorsal abdominal segments VIII and IX shiny yellowish orange; genital plates pale yellow. *Structure*.— Head: antennal segment I longest or equal than II, and III shorter than IV.

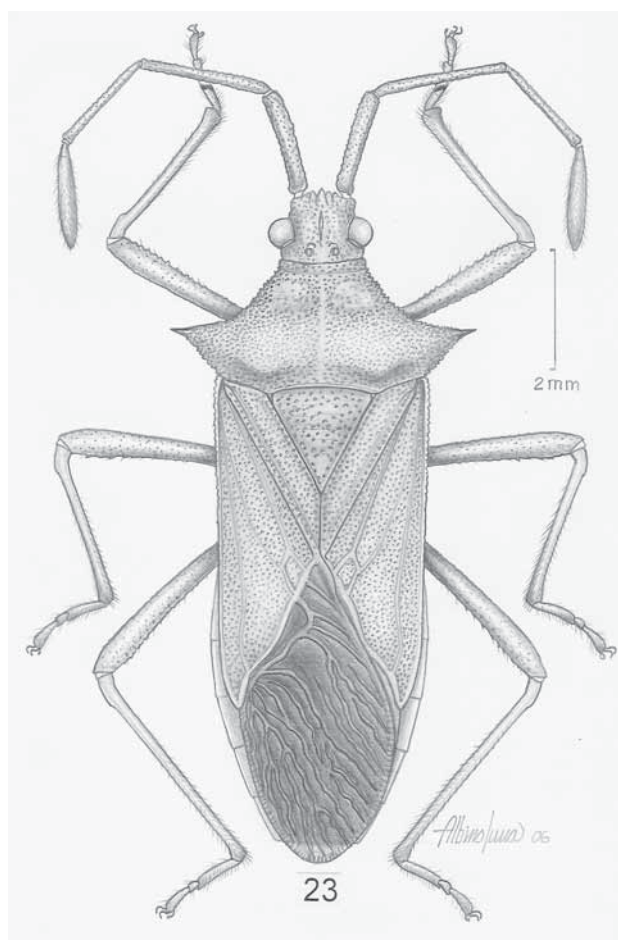


FIGURE 23. Dorsal view of *Cletus saucius* Stål (male).

Variation. 1. Ventral surface of body pale yellow, densely suffused with pale shiny reddish orange marks. 2. Apical margin and apical angle of corium reddish. 3. Costa border of corium with yellowish white teeth. 4. Tibiae pale yellow, apical third reddish, and 2 or 3 dark brown rings, these sometimes hard to see. 5. Middle third of abdominal sterna III to VII with irregular black longitudinal stripe.

Type locality. N AUSTRALIA (as Australia Borealis).

Distribution. AUSTRALIA: New South Wales: Gayndah, and SE coastal; Queensland, NE coastal. (Blöte 1935, and Cassis and Gross 2002).

Material examined. New records. AUSTRALIA: 1 male, New South Wales, Bellinger River, 3 km W Thora, 12-I-1990, B. y M. Baher (ZSMC); 1 male, 1 female, Queensland, Brisbane, 3-VII-1911, 20-IV-1912, H. Hacker (BMNH); 1 female, SE Queensland, Mt. Maroon, S. Rathdownes, 27-I-1973, M. Baher (ZSMC); 1 female, Queensland, Broken R, Eungella, 8-XII-1961, McAlpine and Lossin (AMUS); 1 male, Queensland, Edge Hill, NW of Cairns, 6-IX-1969, J. E. Tobler (UNAM); 1 male, 2 females, Queensland, Baldwin Swamp, E of Bundaberg, 31-X-1977, 2–19-XI-1977, H. Frauca (ANIC); 1 male, New South Wales, Hawkesbury Reserve, 19-VII-1980, R. Patterson (ANIC).

Comments. This species is recognized by having outer border of antenniferous tubercles armed, humeral angle of pronotum tapering into large acute spine directed outward, and slightly backward (Fig. 8), apical third of tibiae and tarsi shiny reddish, and by the shape of the posteroventral edge of male genital capsule (Fig. 22).

Additionally in *C. saucius* Stål (1873) the apical edge of the corium lacks an ivory to whitish discoidal spot, and the anterior half of pronotal disk, as well as the propleuron, mesopleuron, and metapleuron, lack a black discoidal spot

In *C. minutus* Blöte (1935) and *C. similis* Blöte (1935) the antenniferous tubercles are unarmed, the humeral angles obtuse or subacute (Figs. 7, 9), the apical edge of corium has an ivory to whitish discoidal spot, and the anterior half of pronotal disk, as well as the propleuron (sometimes hard to see to absent), mesopleuron, and metapleuron each has a black discoidal spot.

***Cletus similis* Blöte**

(Figs. 9, 13, 14, 20, 24)

Cletus similis Blöte, 1935: 207–208.

Redescription. Male. Head length 1.00; width across eyes 1.26; interocular space 0.76; interocellar space 0.37; preocular distance 0.64; antennal segment length I, 1.32, II, 1.60, III, 1.46, IV 0.92; pronotum length 1.64; width across humeral angles 2.80; scutellar length 1.00; width 1.12; maximum width of abdomen 2.76; total body length 7.45. Dorsal coloration.— Head including antennal segments I to IV pale yellow with black narrow longitudinal stripe behind eyes; pronotum pale yellow with two black lateral discoidal spots at anterior half; scutellum pale yellow with two pale brown discoidal spots on base; clavus and corium pale yellow with punctures slightly darker; anterior half of costal margin of corium pale yellowish white; apical edge of corium with clearly whitish to ivory discoidal spot; apical angle of corium suffused with pale reddish marks; hemelytral membrane translucent, veins, and basal angle dark yellow; connexival segment III pale yellow, IV to VII pale yellow suffused with pale brown marks; dorsal abdominal segments pale yellow, laterally yellowish orange. Ventral coloration.— Venter, rostral segments, legs, genital capsule pale yellow, scattered with pink marks, following areas black to dark brown; apex of rostral segment IV, small discoidal spot on meso— and metapleura, large black discoidal spot on abdominal sternite II, six rows of small to tiny discoidal spots on abdominal sterna III to VII. *Structure.*— Head.— Antennal segment I uniformly robust, wider, granulate, segments II and III slender, cylindrical, IV subclavate; segment II>III>I>IV; antenniferous tubercles widely separate, unarmed; rostrum reaching posterior border of metasternum (Figs. 13–14). Thorax.— Pronotum.— Humeral angle tapering into short subacute spine, directed outward; anterolateral borders crenate; outer third of posteroletaral borders crenate, inner third smooth (Fig. 9). Legs.— Femora and tibiae not coarsely punctate. Genital capsule.— Posteroventral edge with lateral angles straight, without expansions, mesial lobe wider, large, occupying almost entire space of capsule, apically rounded (Fig. 20).

Female. Head length 1.04; width across eyes 1.28; interocular space 0.76; interocellar space 0.33; preocular distance 0.64; antennal segment length I, 1.20, II, 1.44, III, 1.32, IV 0.92; pronotum length 1.64; width

across humeral angles 2.80; scutellar length 0.96; width 1.16; maximum width of abdomen 2.92; total body length 7.05. Coloration similar to male. Connexival segments III to VI pale brown, anterior margin pale yellow, VII pale yellow with pale brown punctures, VIII and IX pale yellow; dorsal abdominal segments VIII and IX yellow, suffused with pale brown marks; genital plates yellow. *Structure*.— Genital plates: abdominal sternite VII with plica and fissura; plica reduced, occupying anterior border of sternite, concave; fissura covering 2/3 or more of total length of sternite; gonocoxae I wide, enlarged anteroposteriorly, in caudal view closed, in lateral view convex, entire; paratergite VIII triangular, spiracle visible; paratergite IX broad, squarish, shorter than gonocoxae I.

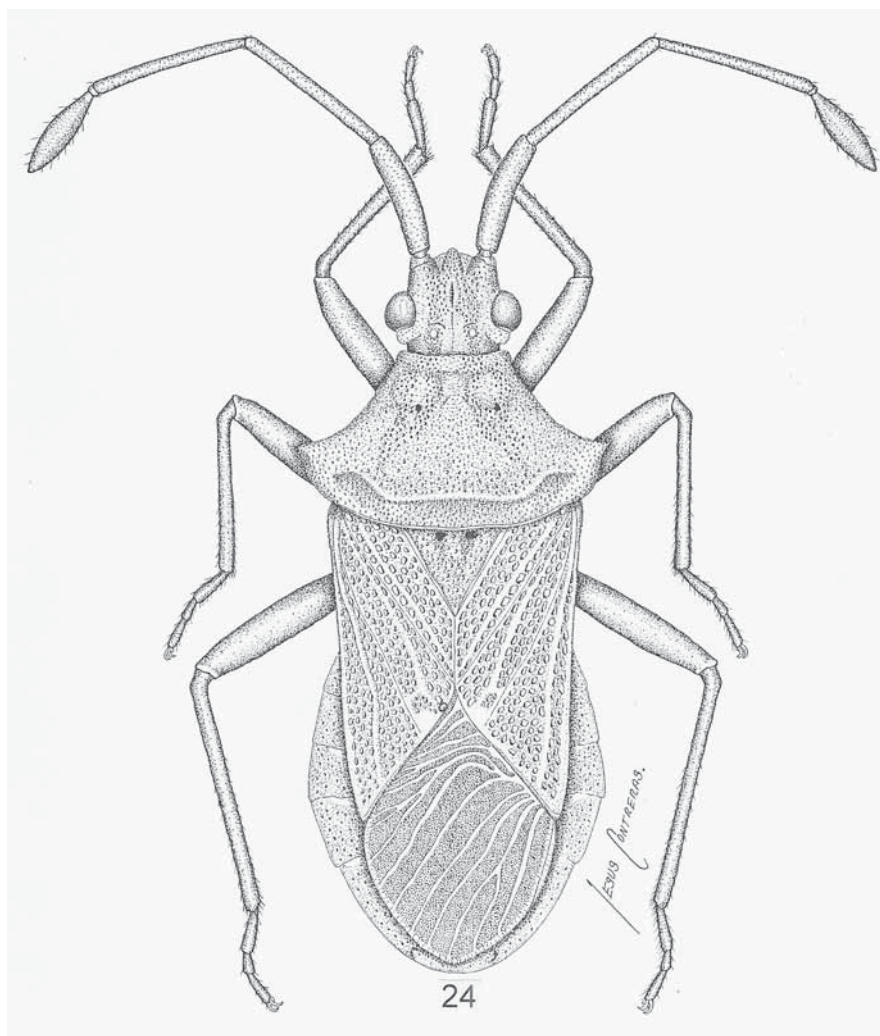


FIGURE 24. Dorsal view of *Cletus similis* Blöte (male).

Variation. 1. Head dorsally pale yellow with two black longitudinal stripes lateral to middle line. 2. Ocular tubercle black. 3. Antennal segments I to III pale yellow, IV dark hazel brown. 4. Pronotal disk pale yellow with two black longitudinal stripes lateral to middle line and reaching humeral third. 5. Propleuron with small black discoidal spot. 6. Metapleuron with or without a black discoidal spot. 7. Femora with reddish brown granules. 8. Claval and corial veins suffused with pink marks. 9. Apical margin of corium reddish. 10. Connexivum yellow with reddish brown punctures. 11. Dorsal abdominal segments II to V yellowish orange, laterally dark brown. 12. Ventral surface heavy suffused with pink marks. 13. Coxae with one or two black discoidal spots.

Type locality. **AUSTRALIA:** New South Wales. (RMNH, examined).

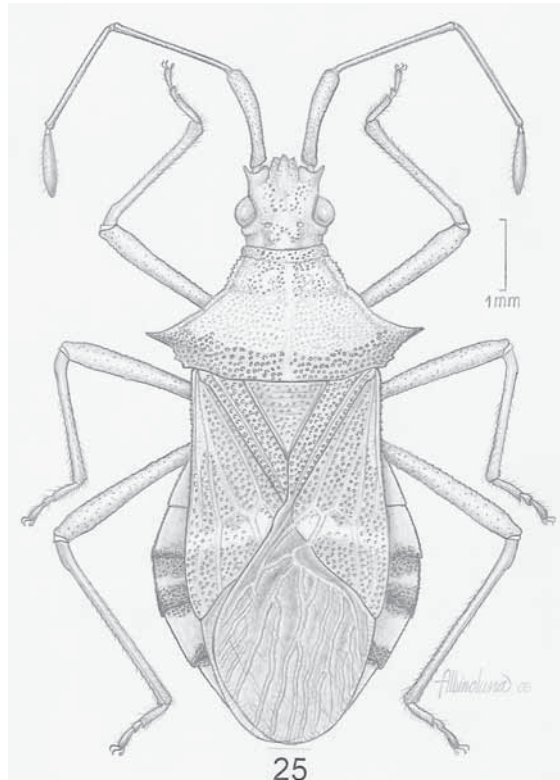


FIGURE 25. Dorsal view of *Cletomorpha mackayensis* Distant (female).

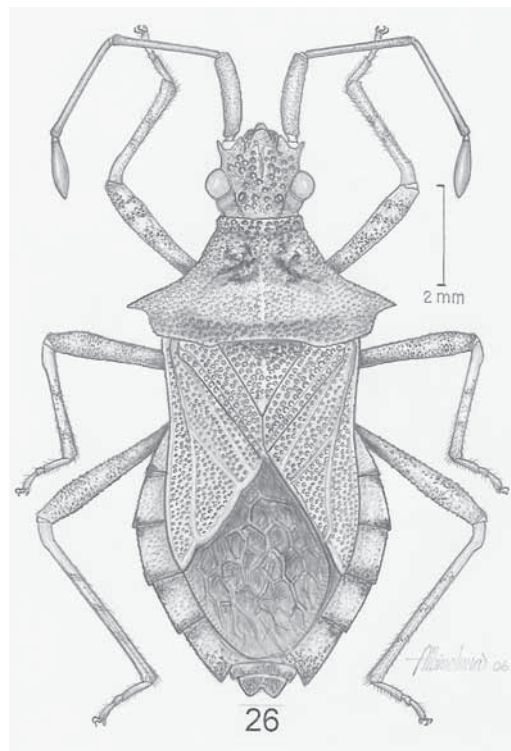


FIGURE 26. Dorsal view of *Cletomorpha saphisa* n. sp. (female).

Distribution. AUSTRALIA: New South Wales, Murray-Darling basin, Barraba, Deniliquin, and Mulla-
 ley; Northern Territory, N coastal, W Plateau, Alice Springs, Darwin, and Yuendumu; Queensland, Murray-
 Darling basin, N Gulf, NE coastal, Cairns, Cunnamulla, Mitchell, Normanton, and Rockhampton; Southern

Australia, Murray-Darling basin, S. Gulfs, W Plateau, Arden Vale, and Coongie Lakes; Victoria, SE coastal; Western Australia, N coastal, W Plateau, Gill Pinnacle; Victoria, SE coastal, Bamawn. INDONESIA. (Blöte 1935, and Cassis and Gross 2002).

Material examined. New records. AUSTRALIA: 1 male, S Queensland, Bunya Mt., 40 km E Dalby, 12-VIII-1972, M. Baehr (ZSMC); 2 males, 3 females, Queensland, Vandyke, 23-XI-1971, O. G. Roche (BMNH); 2 males, 1 female, Queensland, Townsville, June 1903, F. O. Dodd (CAS), 9-I-1945, B. Malkin (USNM); 1 male, Queensland, Malanda, Mjoberg (without date) (NHRM); 2 females, Queensland, N Pine Dam, 20 km NW Brisbane, 8-XI-1989, L. B. and C. W. O'Brien (UNAM); 2 males, 1 female, Northern Territory, Alice Springs, 16–21-IX-1972, M. Baehr (ZSMC); 1 male, Northern Territory, 4 km W Katherine, 15-VIII-1996, R. Fricke (ZSMC); 3 males, 2 females, Northern Territory, Maggie Springs at Uluru National Park, 4-IV-1980, G. F. Hevel and J. A. Fortin (USNM); 2 males, Northern Territory, 4 m W of Coolibah, 15°34'S130°54'E, 1–4-VII-1968, M. Mendum (ANIC); 2 males, Northern Territory, Cooper Ck, 19 km by S of Mt., Borradaile, 12°06'S133°04'S, 10-XI-1972, 5 June 1973, R. L. Kitching, and D. H. Colless (ANIC); 1 female, NW New South Wales, Narrabri, 15-III-1960, M. Nikitir (ZSMC); 1 female, New South Wales, Casula, 19-I-1958, N. Nikitin (USNM); 1 male, Western Australia, Broome, 13-X-1962, E. S. Ross and D. Q. Cavagnaro (CAS); 1 female, Western Australia, Kimberley Res. Station, Wyndham, 4-XII-1953, A. Szito (DAWA); 1 female, Western Australia, Kununurra, 21-XII-1988, B. Wykstra (DAWA).

Comments. *Cletus similis* Blöte (1935) resembles *C. minutus* Blöte in its total body length being less than 8.25 mm, the antenniferous tubercles unarmed, the apical edge of corium with an ivory to whitish discoidal spot, and the anterior half of pronotal disk, as well as the mesopleuron, with a small black discoidal spot. *C. similis* differs in that each antennal segment is conspicuously shorter (see measurements) and in having black to reddish brown spots on the head, the pronotal disk forming a wide stripe that usually reaches the base of the scutellum, and the humeral angles tapering into short subacute spines, directed outward (Fig. 9). In *C. minutus* the humeral angles are larger, acute, and also directed outward (Figs. 7, 9).

***Plinachtus refulgens* n. sp.**

(Figs. 2, 4, 10, 15, 17, 27)

Description. Holotype male. Head length 1.60; width across eyes 1.92; interocular space 0.94; interocellar space 0.44; preocular distance 0.82; antennal segment length I, 2.16, II, 3.16, III, 2.08, IV 2.84; pronotum length 2.36; width across humeral angles 4.12; scutellar length 1.76; width 1.82; maximum width of abdomen 4.08; total body length 13.30. Dorsal coloration.— Head shiny dark reddish, with lateral margin near eyes and ocellar tubercle shiny black; antennal segments I to III black, IV black, dark orange apically; pronotum dark brown to black with wide U-shaped inverted yellow mark; humeral spine pale brownish orange; scutellum dark brownish orange, apex dark brown; clavus and corium dark orange; hemelytral membrane dark yellow, basal angle dark brown; connexival segment II pale orange, III to VII pale orange with posterior third black; dorsal abdominal segments II to VI pale orange, VII dark brown. Ventral coloration.— Head shiny dark reddish, with lateral margin shiny black; rostral segment I pale yellow, II black with basal third pale yellow, III to IV entirely black; thorax shiny orange, acetabulae pale brown, following areas shiny black; large discoidal spot at metapleuron and near meta-acetabula, one elongate spot at upper margin of pro-, meso-, metapleura; legs shiny black to reddish brown; abdominal sterna shiny orange, with small pale brown spot at sternite IV; pleural margin shiny orange with posterior half or posterior third black; genital capsule shiny orange with two black elongate spots, lateral to middle line. *Structure.*— Head.— Pentagonal, elongate, surpassing the antenniferous tubercles; antenniferous tubercles unarmed; antennal segment I thicker than segments II and III, base slender, gradually incrassate apically, curved outward, longer than head, granulate; segments II and III slender, cylindrical, apically slightly broad, IV fusiform, slightly thicker than I; segments

II>IV>I>III; rostrum reaching posterior border of metasternum(Figs. 2, 10,15). Thorax.— Pronotum.— Humeral angles thick at base, projection conspicuously large, narrow, acute, directed upward (Fig. 4). Legs.— Unarmed; femora, tibiae finely granulate. Abdomen.— Connexivum with posterior angles unarmed. Genital capsule.— Posteroventral edge with prominent medial lobe, differentiated in two symmetrical secondary lobes directed laterally, with medial open concavity (Fig. 17).

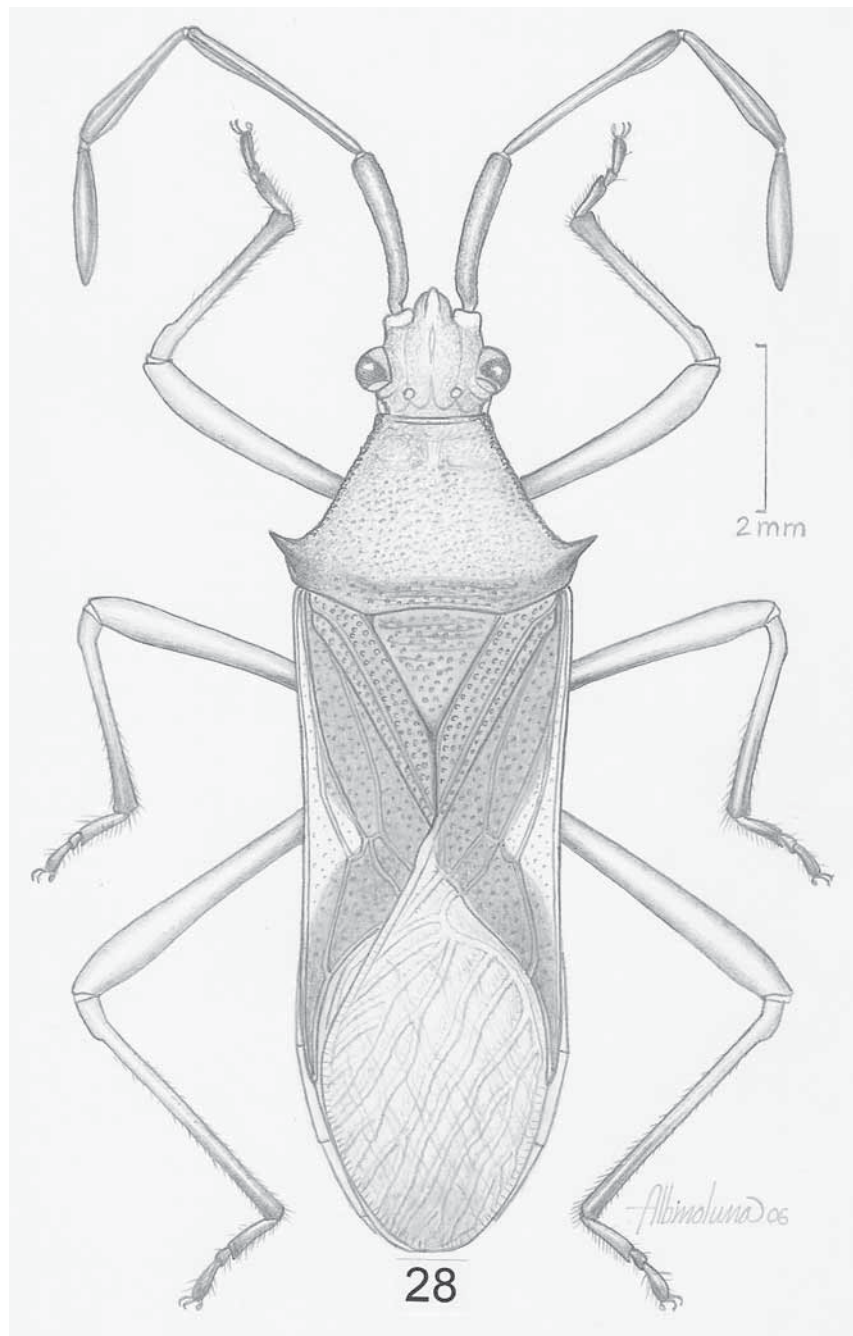


FIGURE 27. Dorsal view of *Plinachtus refulgens* n. sp. (female).

Female. Head length 1.84; width across eyes 2.20; interocular space 1.16; interocellar space 0.60; preocular distance 1.18; antennal segment length I, 2.52, II, 3.72, III, 2.36, IV 3.24; pronotum length 2.72; width across humeral angles 5.52; scutellar length 1.92; width 2.00; maximum width of abdomen 4.76; total body length 15.90. Coloration similar to male. Connexival segments VIII and IX orange with posterior half black; dorsal abdominal segments VIII and IX black; genital plates shiny orange with black elongate spot at gonocoxae I. *Structure*.— Abdominal sternite VII with plica and fissura; plica reduced, occupying anterior border

of sternite; fissura overlapping, covering 2/3 or more of total length of sternite; gonocoxae I quadrate, enlarged anteroposteriorly, overlapping in caudal view; paratergite VIII triangular with spiracle visible; paratergite IX broad, squarish.

Variation. Colour markings vary considerably among the specimens examined. 1. Head, pronotum, scutellum, clavus, corium with greenish-blue reflections. 2. Head entirely pale reddish. 3. Antennal segments I to IV pale yellowish orange. 4. Antennal segment I shiny orange, II and III shiny orange with apical third black, and IV reddish orange. 5. Pronotum pale yellowish orange, with anterior margin, humeral section, and middle third of posterior margin pale brown to black. 6. Humeral spine of pronotum pale yellow. 7. Pro-, meso-, and metapleura shiny black and anterior and posterior borders shiny orange. 8. Legs pale yellowish orange or dark orange. 9. Scutellum pale yellowish orange, pale brown apically. 10. Clavus and corium shiny reddish. 11. Clavus pale yellowish orange. 12. Corium entirely pale yellowish orange, or with costal margin and exocorium pale brown. 13. Dorsal abdominal segments II to VI shiny orange and laterally black. 14. Paratergite IX black with posterior third shiny orange. 15. Female genital plates pale yellow.

Types. Holotype male, **AUSTRALIA:** Queensland, Townsville, 28-II-1968, P. Ferrar (ANIC).

Paratypes. **AUSTRALIA:** 2 females Queensland, Booby Island, 10°36'S 141°54'E, 3–4-III-1978, and 9–10-VII-1978 (without collector) (ANIC); 1 female, S Queensland, I-1967, E. Stutton (ANIC); 1 female, Queensland, Biggenden, 30-IV-1973, H. Frauca (ANIC); 1 female, Queensland, 27-V-1960, P. Aitken and N. Tindale (SAMA); 1 female, Queensland, Selwyn Mine, 160 km SE Mt. Isa, 10–23-VIII-1990, T. Woodger (AMUS).

Comments. Considerable variation in colour markings occurs even within a single population. This variation is found on either the dorsal or ventral surface. *Plinachtus refulgens* is easily distinguished from other species by its elongate head, its humeral angles being thick basally, and the humeral spine being remarkably large, narrow, acute, and directed upward (Fig. 4), and by the shape of the posteroventral edge of the genital capsule (Fig. 17).

Etymology. The specific name refers to the unusually bright and shining coloration of this species.

Plinachtus melinus n. sp.

(Figs. 1, 3, 18, 28)

Description. Holotype male. Head length 1.52; width across eyes 1.68; interocular space 0.90; interocellar space 0.42; preocular distance 0.96; antennal segment length I, 1.90, II, 2.48, III, 1.74, IV 1.60; pronotum length 2.32; width across humeral angles 3.76; scutellar length 1.32; width 1.36; maximum width of abdomen 3.40; total body length 11.10. Dorsal coloration.— Head and pronotum pale yellowish orange with following areas black to reddish brown: two longitudinal stripes on either side of midline and near eyes, ocellar tubercle, space between antenniferous tubercles and eyes, inner face of postocular tubercle, anterolateral margins of pronotum, humeral projection, a few punctures at posterior lobe of pronotal disk; antennal segments I to III shiny orange, IV dark brown but basally and apically paler; scutellum pale yellowish orange, punctures pale reddish brown, apex pale brown; clavus pale yellowish orange, punctures pale reddish brown; corium pale yellowish orange, punctures pale reddish brown, apical margin and apical angle reddish, anterior 2/3 of costal margin with pale yellow longitudinal stripe, narrow basally and widened apically; hemelytral membrane translucent, basal angle pale brown; connexival segments III to V pale yellow, VI and VII pale yellow with dark brown spot at anterior margins, occupying only inner third; dorsal abdominal segments II to VI shiny yellowish orange, VII dark reddish brown, posterior margin dark brown. Ventral coloration.— Pale yellow with small black discoidal spot on metapleuron; rostral segment I and II pale yellow, III and IV shiny orange (apex of IV dark brown). *Structure.*— Head.— Pentagonal, elongate, surpassing antenniferous tubercles; antenniferous tubercles unarmed; antennal segment I somewhat triquetral, stouter than others, with small den-

ticles, slightly curved outward; antennal segment II gradually incrassate, segment III narrowly expanded, elliptical, IV fusiform (Fig. 1); segments $II > I > III > IV$; rostrum reaching middle third of metasternum. Thorax.— Pronotum.— Humeral angle thick at base, humeral spine tapering, short and acute pointing outward and slightly upward (Fig. 3). Genital capsule.— Posteroventral edge with medial lobe protruding, prominent, lateral lobes symmetrical, stout, space between them slightly concave to straight (Fig.18).

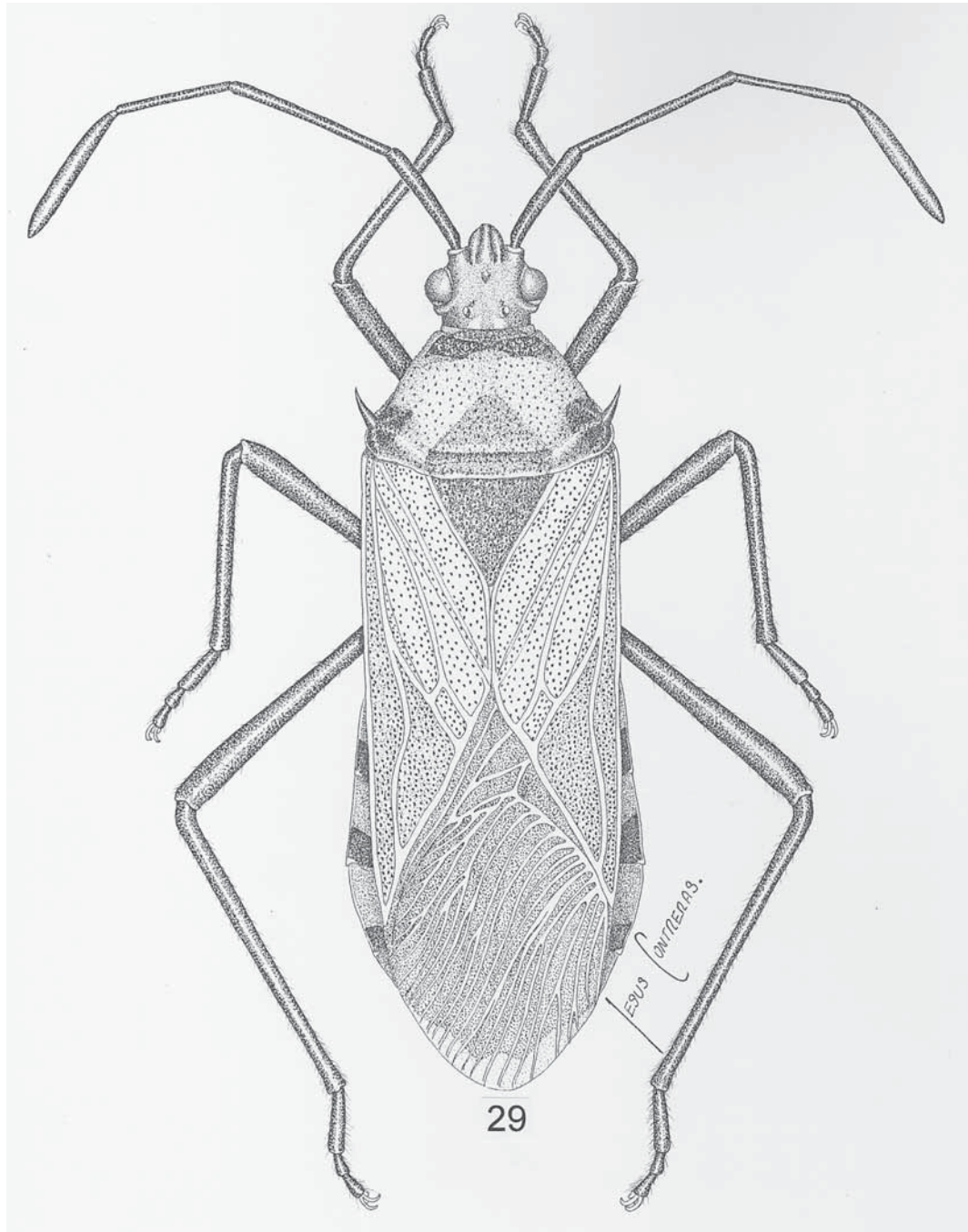


FIGURE 28. Dorsal view of *Plinactus melinus* n. sp. (male).

Female. Head length 1.60; width across eyes 1.84; interocular space 1.02; interocellar space 0.48; preocular distance 1.02; antennal segment length I, 1.92, II, 2.60, III, 1.84, IV 1.66; pronotum length 2.60; width across humeral angles 4.12; scutellar length 1.52; width 1.56; maximum width of abdomen 3.88; total body length 12.18. Coloration similar to male holotype. Connexival segments VIII and IX pale yellow; dorsal abdominal segments II to VII shiny yellowish orange, VIII to IX shiny yellowish orange, laterally pale brown;

genital plates pale yellow. *Structure*.— Genital plates: abdominal sternite VII as in *Plinachtus refulgens*. Gonocoxae I enlarged anteroposteriorly, in caudal view opened, upper third with inner margin rounded and clearly overlapping, outer margin barely convex; paratergite VIII triangular, spiracle visible; paratergite IX broad, squarish.

Variation. 1. Antennal segment IV pale orange, basal joint and apex pale yellow. 2. Mesopleuron and metapleuron with wide reddish discoidal spot. 3. Coxae, posterior third of femur, basal and apical third of tibiae, and tarsi pale reddish.

Types. **Holotype** male, **AUSTRALIA:** Queensland, Biggenden, Mt. Walsh Nat. Pk., Bluff Range 10-VIII-1971, H. Frauca (ANIC). **Paratypes.** **AUSTRALIA:** 2 females, N Queensland, Townsville, G. F. Hill (without date) (SAMA); 1 female, Queensland, Townsville, 24-III-1968 (light trap), P. Ferrar (ANIC); 1 female, Queensland, 8 mi NW of Mt. Molloy, 19-IX-1956, M. J. D. White (ANIC); 1 male, NE Queensland, McLeod River, crossing Mt. Carbine, Mt. Spurgeon Rd., 16°28'S145°09'E, 19-XI-1997, C. J. Burnwell (QMBA).

Comments. This new species is related to *P. refulgens* Brailovsky in having the head elongate and surpassing the antenniferous tubercles, the later unarmed, and the abdominal sternite VII of female with the plica reduced and occupying the anterior border of the sternite, and the fissura covering most of the total length. *Plinachtus melinus* n. sp., is a relatively narrower and shorter species, less than 12.50 mm long; its humeral spine tapers into a short acute spine pointing outward and slightly upward (Fig. 3); its antennal segment I is somewhat triquetral, and segment III is narrowly elliptical and expanded (Fig. 1); the new species' costal margin of corium has a pale yellow longitudinal stripe, narrow on the basal third and expanded apically; its rostral segments I and II are pale yellow and III and IV are shiny orange; its metapleuron have a single small black discoidal spot; and its gonocoxae I in caudal view is clearly open. *Plinachtus refulgens*, is a robust species, longer than 13.00 mm; humeral projection clearly longer, narrowed, acute, and directed upward (Fig. 4); costal margin of corium without a pale yellow longitudinal stripe; antennal segment I not triquetral, and III cylindrical and not expanded (Fig. 2); rostral segment I yellow, segment II black to pale brown, basal joint yellow, III to IV black to pale brown; metapleuron with large black discoidal spot; and gonocoxae I in caudal view closed.

Etymology. The species epithet is derived from the Latin adjective, *melinus*, meaning quince yellow, and referring to the yellow mark on the costal margin of the corium.

Acknowledgments

I wish to thank the following individuals and institutions for loans of specimens and other assistance: Gerasimos Cassis (AMUS); Tom Weir (ANIC); Mick Webb (BMNH); Al Samuelson (BPBM); Vincent Lee and Norman D. Penny (CAS); Terry F. Houston (DAWA); John F. Donaldson (DPI); Geoffrey B. Monteith (QMBA); Peter van Doesburg Jr. (RMNH); Jean Forrest (SAMA); Thomas J. Henry (USNM); and Klaus Schönitzer (ZSMC). Special thanks are extended to Ernesto Barrera (UNAM), Albino Luna (UNAM), and Jesus Contreras for the preparation of the illustrations. This work was supported by the Dirección General de Asuntos del Personal Académico (Subdirección de Formación Académica), Universidad Nacional Autónoma de México, UNAM-DGAPA, IN 220135 project.

References

- BLÖTE, H. C. (1935) Catalogue of the Coreidae in the Rijksmuseum van Natuurlijke Histoire. Part II. Coreinae, first part. *Zoologisches Mededelingen*, 18, 181–227.
CASSIS, G., AND GROSS, G. F. (2002) Hemiptera: Heteroptera (Pentatomomorpha). In Houston, W. W. K. & Wells, A.

- (eds). *Zoological Catalogue of Australia*. Vol. 27.3B. Melbourne: CSIRO Publishing, Australia xiv 737 pp.
- DISTANT, W. L. (1911) Rhynchotal notes. LV. *The Annals and Magazine of Natural History*, (8) 7, 576–586.
- STÅL, C. (1865) Hemiptera nova vel minus cognita. *Annales de la Société Entomologique de France*, 50, 163–188.
- STÅL, C. (1873) Enumeratio Hemipterorum. Bidrag till en förteckning öfver aller hittills kända Hemiptera, jemte systematiska meddelanden. 3. *Köngliga Svenska Vetenskaps- Akademiens Handlingar*, 11 (2), 1–163.
- WESTWOOD, J. O. (1842) A Catalogue of Hemiptera in the collection of the Rev. F. W. Hope. Part II. *London: J. C. Bridgewater*, 26 pp.